

**Amendments to the Specification:**

Please insert the following paragraph on page 26 as the first paragraph under the heading BRIEF DESCRIPTION OF THE DRAWINGS:

The patent or application file contains at least one drawing executed in color. Copies of this patent or patent application publication with color drawing(s) will be provided by the Office upon request and payment of the necessary fee.

Please replace the following paragraphs on page 27, lines 10 through 25 with the following amended paragraphs:

FIG. 2A is a ~~color~~ photograph of the DAPI stain in a human metaphase spread which was prepared and hybridized contemporaneously with the spread shown in the computer generated binary images of FIGS. 1A, B and C.

FIG. 2B is a ~~color~~-photograph of the fluorescein attached to the DNA probe in the same human metaphase spread as shown in FIG. 2A. It was obtained by changing the filters in the fluorescence microscope to excite fluorescein rather than DAPI. The photograph is comparable to the binary image of FIG. 1B.

FIG. 3 is a black and white photograph of a human metaphase spread prepared and hybridized contemporaneously with the spreads shown in FIGS. 1A, B and C and 2A and B. The procedures used were the same except that PI (propidium iodide) instead of DAPI, was used to stain all the chromosomes. Both PI and fluorescein stains can be viewed with the same microscope filters. Color film was used such that in a color photograph the propidium iodide counterstain appears would appear red and the fluorescein of the probe appears would appear yellow on the color film.

Please replace the following paragraphs on page 29, lines 12 through 15, with the following amended paragraph:

FIG. 5 shows the hybridization of a yeast artificial chromosome (YAC) clone containing a 580 kb insert of human DNA to a human metaphase spread. A yellow fluorescein band on each of the chromosome 12s (at 12q21.1) is visible against the propidium iodide counterstain.